CLAIMS

Listing of claims:

1. (Previously Presented) A method for developing an optimal sales plan for multiple products with multiple price classes contingent on different possible realizations of uncertain demand over multiple time periods with the objective of maximizing expected revenue over a constrained capacity, comprising:

formulating a multistage stochastic program that generates a quantity of each of the multiple products to be sold in each of the multiple time periods and a recommendation for whether to accept an order for at least one of the multiple products at a time when demand exceeds a planned sales volume at least one of the multiple time periods;

estimating a likelihood that the demand for the at least one of the multiple time periods exceeds the planned sales volume;

collecting realized order data for each of the multiple time periods; and

executing the multistage stochastic program using the likelihood and the realized order data to generate a sales plan.

2. (Original) The method of claim 1, wherein collecting realized order data comprises continuously collecting new realized order data and using the likelihood and the new realized order data to generate a revised sales plan.

3. (Original) The method of claim 1, wherein formulating a multistage stochastic program comprises formulating the multistage stochastic program using IBM OSL Stochastic Extensions.

4. (Original) The method of claim 1, wherein formulating a multistage stochastic program that generates a quantity of each product to be sold in each of the multiple time periods and a recommendation comprises formulating a multistage stochastic program that generates a quantity of each product to be sold in each of the multiple time periods and a recommendation for pricing each of the multiple products.

5. (Previously Presented) The method of claim 1, wherein estimating a likelihood comprises determining a demand forecast and comparing the demand forecast and the planned sales volume.

6. (Original) The method of claim 1, wherein executing the multistage stochastic program using the likelihood to generate a sales plan comprises executing the multistage stochastic program using the likelihood to generate a sales plan for pricing each of the multiple products.

7. (Original) The method of claim 1, wherein collecting realized order data comprises collecting realized order data from an Internet website.

8. (Original) The method of claim 1, wherein collecting realized order data comprises collecting realized order data from a point-of-sale terminal.

9. (Original) The method of claim 1, wherein collecting realized order data comprises collecting realized order data from a reverse auction.

10. (Original) The method of claim 1, further comprising keeping a counter of the quantity of realized order data being collected.

11. (Previously Presented) The method of claim 10, further comprising calculating a confidence level representing a probability that the realized order data will be outside the range of a confidence interval.

12. (Previously Presented) The method of claim 11, wherein the confidence level is calculated using a normal distribution program upon determining that the counter has a value above a threshold.

13. (Previously Presented) The method of claim 11, wherein the confidence level is calculated using a gamma distribution program upon determining that the counter has a value below a threshold.

14. (Canceled)

15. (Previously Presented) An apparatus for developing an optimal sales plan for multiple products with multiple price classes contingent on different possible realizations of uncertain demand over multiple time periods with the objective of maximizing expected revenue over a constrained capacity, comprising:

a stochastic programming engine for formulating and executing a multistage stochastic program that generates (i) a strategic decision model for prescribing a quantity of each product to

be sold in each of the multiple time periods, and (ii) a tactical decision model for generating recommendation for whether to accept an order for at least one of the multiple products at a time when demand exceeds a planned sales volume for at least one of the multiple time periods; and

a trigger engine for estimating a likelihood that the demand for at least one of the multiple time periods exceeds the planned sales volume.

16. (Original) The apparatus of claim 15, wherein the trigger engine comprises a set of decision variables.

17. (Original) The apparatus of claim 16, wherein the set of decision variables comprising:

a variable indicating the planned sales volume of one of the multiple products in one of the multiple price classes;

a variable indicating the quantity of one of the multiple products in one of the multiple price classes manufactured in a current time period to be sold in a next time period; and

a variable indicating the quantity of one of the multiple products in one of the multiple price classes manufactured in the current time period to be sold in the current time period.

18. (Original) The apparatus of claim 15, wherein the strategic decision model comprises:

a profit function that accounts for total revenue for each of multiple products, wherein the profit function comprises:

a production constraint;

a demand constraint; and

a service level constraint.

19. (Original) The apparatus of claim 18, wherein the profit function further comprises an on-hand inventory constraint.

20. (Previously Presented) A machine-readable medium having instructions stored thereon for execution by a processor to perform a method of developing an optimal sales plan for multiple products with multiple price classes contingent on different possible realizations of uncertain demand over multiple time periods with the objective of maximizing expected revenue over a constrained capacity, comprising:

formulating a multistage stochastic program that generates a quantity of each of the multiple products to be sold in each of the multiple time periods and a recommendation for whether to accept an order for at least one of the multiple products at a time when demand exceeds a planned sales volume at least one of the multiple time periods;

estimating a likelihood that the demand for the at least one of the multiple time periods exceeds the planned sales volume;

collecting realized order data for each of the multiple time periods; and

executing the multistage stochastic program using the likelihood and the realized order data to generate a sales plan.